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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,494	03/09/2004	Michael A. Rothman	42P18588	3045

7590 11/15/2006

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EXAMINER

MEHRMANESH, ELMIRA

ART UNIT	PAPER NUMBER
2113	

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/796,494	ROTHMAN ET AL.
	Examiner Elmira Mehrmanesh	Art Unit 2113

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 March 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-33 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-33 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on March 9, 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The application of Rothman et al., for a "System and method to implement a rollback mechanism for a data storage unit" filed March 9, 2004, has been examined. Claims 1-33 are presented for examination.

Claims 1-7, 15-18, and 20-33 are rejected under 35 USC § 102.

Claims 8-14, and 19 are rejected under 35 USC § 103.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 15-18, and 20-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Long et al. (U.S. Patent No. 5,325,519).

As per claim 1, Long discloses a method, comprising: intercepting a request to write new data to a location on a data storage unit ("DSU") (col. 7, lines 33-37) saving a copy of old data currently residing at the location on the DSU to enable restoration of the old data to the location on the DSU; and writing the new data to the location on the DSU (col. 7, lines 37-43).

As per claim 2, Long discloses restoring the old data to the location using the saved copy of the old data to rollback the DSU to a previous state (col. 7, lines 15-16).

As per claim 3, Long discloses generating a recovery screen asking a user whether to restore the previous state in response to encountering a system error (col. 6, lines 57-68).

As per claim 4, Long discloses saving the copy of the old data further comprises saving the copy of the old data with a time marker to enable rollback of the DSU to a known good state (Fig. 2b and 3) and (Table 1, Time).

As per claim 5, Long discloses saving multiple versions of the old data correlated with time markers to enable rollback of the DSU to one of multiple previous states (col. 7, lines 37-43).

As per claim 6, Long discloses pruning versions of the old data having an expired time marker (col. 9, lines 50-53).

As per claim 7, Long discloses saving the copy of the old data comprises saving the copy to a reserved area of the DSU hidden from an operating system ("OS") (Fig. 2a, element 26).

As per claim 15, Long discloses a machine-accessible medium that provides instructions that, if executed by a machine, will cause the machine to perform operations (Fig. 1) comprising:

intercepting a request to write new data to a location on a data storage unit ("DSU") (col. 7, lines 33-37)

saving a copy of old data currently residing at the location on the DSU to enable restoration of the old data to the location on the DSU; and writing the new data to the location on the DSU (col. 7, lines 37-43).

As per claim 16, Long discloses restoring the old data to the location using the saved copy of the old data to rollback the DSU to a previous state (col. 7, lines 15-16).

As per claim 17, Long discloses saving the copy of the old data further comprises saving the copy of the old data with a time stamp to enable rollback of the DSU to a known good state (Fig. 2b and 3) and (Table 1, Time).

As per claim 18, Long discloses saving the copy of the old data further comprises saving the copy of the old data with an address of the location to enable restoring the old data to the location (Fig. 2b and 3) and (Table 1).

As per claim 20, Long discloses a machine-accessible medium that provides instructions that, if executed by a machine, will cause the machine to perform operations (Fig. 1) comprising:

intercepting requests to write new data to write locations within a first portion of a data storage unit ("DSU") (col. 7, lines 33-37)

saving the new data to a reserved area not including the first portion; and leaving data currently stored at the write locations to enable rollback of the DSU to a previous state (col. 7, lines 37-43).

As per claim 21, Long discloses intercepting a request to read a read location within the first portion (col. 7, lines 33-37)

determining whether any of the new data saved within the reserved portion corresponds to the read location and providing a corresponding portion of the new data in response to the request to read the read location, if some of the new data saved within the reserved area is determined to correspond to the read location (col. 7, lines 37-43).

As per claim 22, Long discloses providing data saved at the read location within the first portion in response to the request to read the read location, if none of the new data saved within the reserved area is determined to correspond to the read location (Tables 1 and 2).

As per claim 23, Long discloses saving the new data to the reserved area further comprises saving the new data to the reserved area along with addresses of the corresponding write locations (Figs. 2 and 3) and wherein determining whether any of the new data saved within the reserved portion corresponds to the read location comprises comparing the addresses saved within the reserved area to a read address of the read location (Tables 1 and 2).

As per claim 24, Long discloses providing instructions that, if executed by the machine, will cause the machine to perform further operations, comprising deleting the new data saved to the reserved area to rollback the DSU to a known good state (col. 7, lines 37-43).

As per claim 25, Long discloses a system, comprising: a processor to execute instructions (Fig. 1, element 14)

hard disk drive ("HDD") (Fig. 2a, 2b) to save old data and new data (col. 7, lines 33-37) and non-volatile memory accessible by the processor and having the instructions stored thereon (Fig. 1) which if executed by the processor, will cause the processor to perform operations comprising:

intercepting a request to write new data to a write location on the HDD (col. 7, lines 33-37) saving a copy of old data currently residing at the write location on the HDD to enable restoration of the old data to the write location on the HDD; and writing the new data to the write location on the HDD (col. 7, lines 37-43).

As per claim 26, Long discloses restoring the old data to the write location using the saved copy of the old data to rollback the HDD to a previous state (col. 7, lines 15-16).

As per claim 27, Long discloses saving the copy of the old data currently residing at the write location comprises saving the copy of the old data with a time marker and an address of the write location to enable rollback of the HDD (Fig. 2a, 2b) to a known good state (col. 7, lines 15-16).

As per claim 28, Long discloses saving the copy of the old data currently residing at the write location further comprises saving the copy to a reserved area of the HDD hidden from an operating system saved on the HDD (Fig. 2a, element 26).

As per claim 29, Long discloses the HDD comprises the non-volatile memory (col. 7, lines 54-58).

As per claim 30, Long discloses a system, comprising: a processor (Fig. 1, element 14) to execute instructions; a hard disk drive ("HDD") (Fig. 1, element 18) to save old data and new data; and non-volatile memory accessible by the processor and having the instructions stored thereon, which if executed by the processor (Fig. 1), will cause the processor to perform operations comprising:

intercepting requests to write new data to write locations within a first portion of the HDD (col. 7, lines 33-37)

saving the new data to a reserved area not including the first portion; and preserving old data currently stored at the write locations to enable rollback of the HDD to a previous state (col. 7, lines 37-43).

As per claim 31, Long discloses intercepting a request to read a read location within the first portion (col. 7, lines 33-37)

determining whether any of the new data saved within the reserved portion corresponds to the read location; and providing a corresponding portion of the new data in response to the request to read the read location, if some of the new data saved within the reserved area is determined to correspond to the read location (col. 7, lines 37-43) and (Tables 1 and 2).

As per claim 32, Long discloses providing data saved at the read location within the first portion in response to the request to read the read location, if none of the new data saved within the reserved area is determined to correspond to the read location (Tables 1 and 2).

As per claim 33, Long discloses deleting the new data saved to the reserved area to rollback the DSU to a known good state (col. 7, lines 37-43).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Long et al. (U.S. Patent No. 5,325,519) in view of Schneider et al. (U.S. Patent No. 6,016,553).

As per claim 9, Long discloses a method, comprising: intercepting a request to write new data to a first location on a data storage unit ("DSU") (col. 7, lines 33-37) and leaving old data currently stored at the first location to enable rollback of the DSU to a previous state (col. 7, lines 37-43).

Long fails to explicitly disclose a second location.

Schneider teaches:

saving the new data to a second location different from the first location (Fig. 29 shows saving data in three different locations).

It would have been obvious to one of ordinary skill in the art at the time the invention to use the method of saving, using and recovering data of Schneider et al.'s in combination with hard disk error recovery of Long et al.

One of ordinary skill in the art at the time the invention would have been motivated to make the combination because Long discloses a method and system for hard disk error recovery in which responsive to a user request, data is restored from the sequence of data transfers in the audit partition region to the respective set of locations on the storage device to return the storage device to a previous state (Fig. 4). Schneider et al. discloses a method and apparatus for reverting a disk drive to an earlier point in time (col. 6, lines 20-40).

As per claim 10, Long discloses intercepting a request to read the first location of the DSU (col. 7, lines 33-37)

Long et al. fails to explicitly disclose a second location.

Schneider teaches:

determining whether the new data corresponding to the first location is currently saved at the second location (col. 14, lines 23-34)

and diverting the request to read the first location to the second location (col. 8, lines 54-64).

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As per claim 11, Long et al. fails to explicitly disclose a second location.

Schneider teaches:

saving the new data to the second location further comprises saving an address of the first location along with the new data at the second location (col. 14, lines 23-34).

As per claim 12, Long discloses a reserved area of the DSU hidden from an operating system loaded from a partition of the DSU (Fig. 2a, element 26).

Long et al. fails to explicitly disclose a second location.

Schneider teaches:

saving the new data to the second location (col. 14, lines 23-34).

As per claim 13, Long et al. fails to explicitly disclose a second location.

Schneider teaches:

determining whether the new data corresponding to the first location is currently saved at the second location comprises searching the reserved area for a match between a read address of the request to read the first location and the address of the first location saved along with the new data at the second location (col. 14, lines 23-34).

As per claim 14, Long et al. fails to explicitly disclose a second location.

Schneider teaches:

deleting the new data written to the second location; and directing the request to read the first location to the first location (col. 18, lines 18-24).

Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Long et al. (U.S. Patent No. 5,325,519) in view of Wing et al. (U.S. PGPUB No. 20040172574).

As per claim 8, Long discloses intercepts the request to write the new data and saves the copy of the old data to the reserved area (col. 7, lines 33-37)

Long fails to explicitly disclose a VMM.

Wing teaches:

executing the OS within a virtual machine; and proxying access to the DSU with a virtual machine monitor ("VMM") (page 7-8, paragraph [0104] and page 12, paragraph [0175]).

It would have been obvious to one of ordinary skill in the art at the time the invention to use the method of fault-tolerant networks by back-up of critical data of Wing et al.'s in combination with hard disk error recovery of Long et al.

One of ordinary skill in the art at the time the invention would have been motivated to make the combination because Long discloses a method and system for hard disk error recovery in which responsive to a user request, data is restored from the sequence of data transfers in the audit partition region to the respective set of locations on the storage device to return the storage device to a previous state (Fig. 4). Wing et al. discloses fault-tolerant networks and particularly, although not exclusively, to various methods, systems and apparatus for the back-up of critical data (page 6, paragraph [0072] and page 12, paragraph [0175]).

As per claim 19, Long discloses intercepts the request to write the new data and saves the copy of the old data to the reserved area (col. 7, lines 33-37)

Long fails to explicitly disclose a VMM.

Wing teaches:

executing the OS within a virtual machine; and proxying access to the DSU with a virtual machine monitor ("VMM") (page 7-8, paragraph [0104] and page 12, paragraph [0175]).

Related Prior Art

The following prior art is considered to be pertinent to applicant's invention, but nor relied upon for claim analysis conducted above.

Komasaka et al. (U.S. Patent No. 6,594,781), "Method of restoring memory to a previous state by storing previous data whenever new data is stored".

Vaitzblit (U.S. Patent No. 6,769,074), "System and method for transaction-selective rollback reconstruction of database objects".

Thomas et al. (U.S. Patent No. 6,802,025), "Restoration of a computer to a previous working state".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmira Mehrmanesh whose telephone number is (571) 272-5531. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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